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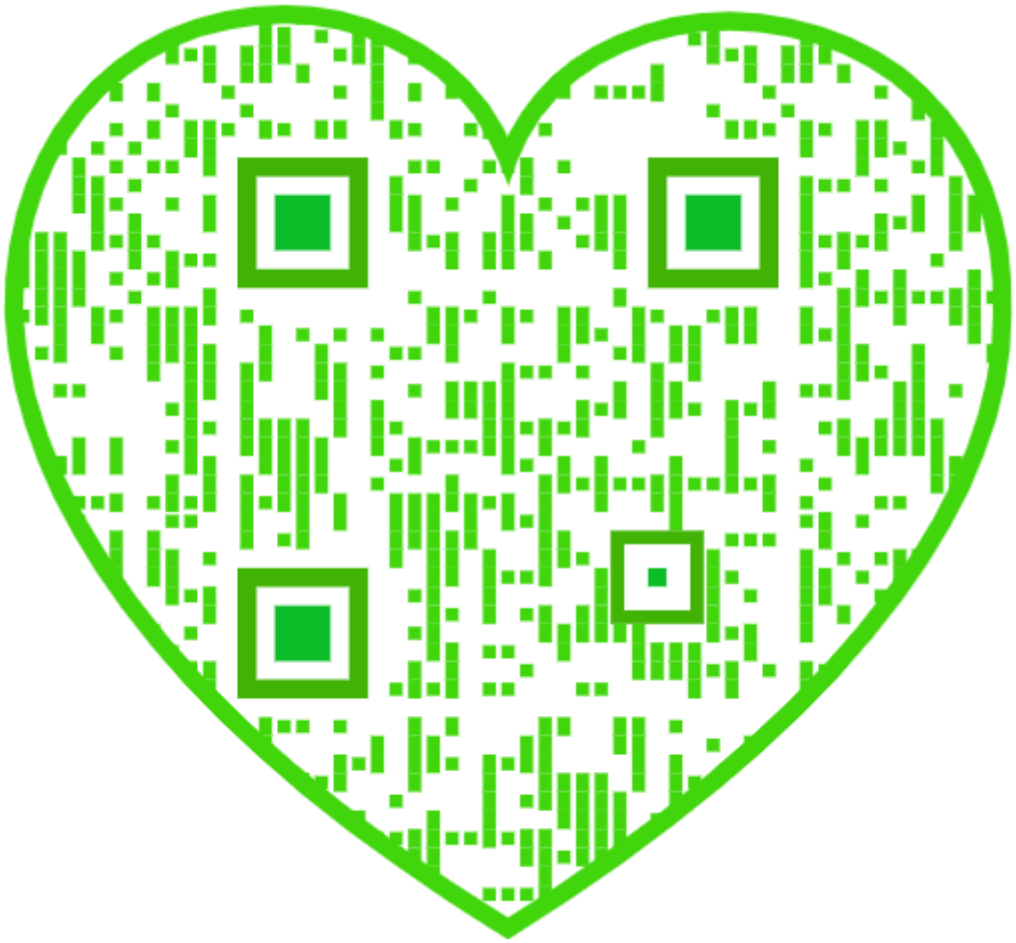

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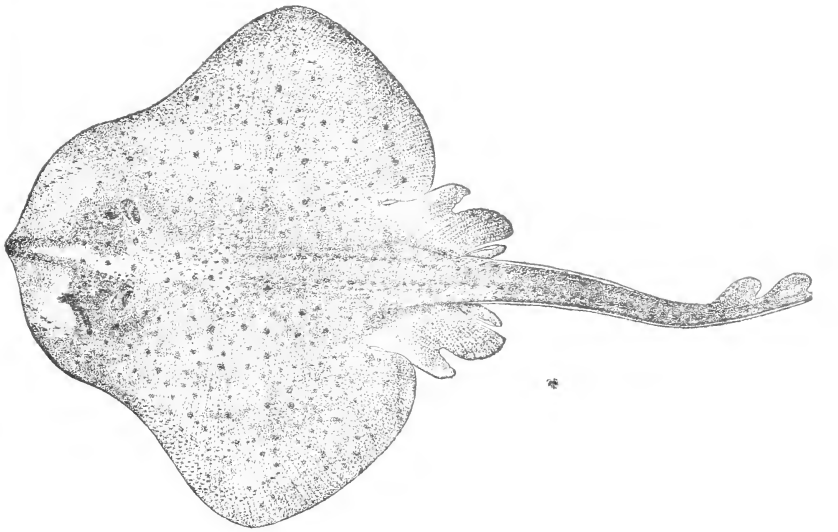
DEPARTMENT OF COMMERCE
BUREAU OF FISHERIES

Economic Circular No. 34 . . . . . Issued March 20, 1918

SKATES AND RAYS.[a]

Interesting Fishes of Great Food Value, with 29 Recipes for Cooking Them.

The redoubtable Capt. John Smith, while exploring Chesapeake Bay during the summer of 1608, after trying vainly to catch fish in a frying pan, resorted more successfully to the sword, an instrument in the use of which he was doubtless more expert. Included in his



catch was a sting ray which he found to be no mean antagonist, for it drove its tail spine into his wrist, inflicting a wound an inch and a half deep, and of such severity and alarming consequences that the captain selected his burial place, and his companions busied themselves in digging his grave. Fortunately the use of "a precious oyle" so alleviated the pain that the grave was not required and the sturdy soldier was able to eat his foe for supper.

In the more than three centuries since this adventure, which so nearly cut short the career of one of the most interesting characters

[a] By H. F. Moore, Deputy Commissioner, Bureau of Fisheries.

in American history, not much progress has been made in utilizing the abundant food supply offered by the skates and rays. A few of these fish are eaten in some parts of the country, but it is safe to say that on the day in which Capt. Smith and his companions ate his late enemy the per capita consumption of rays by the white population of the United States probably reached its maximum.

The sting ray, or stingaree, as it is often called, is one of the most common of a group of fishes known as skates and rays. They are all characterized by flat bodies adapted to a bottom-dwelling habit, and their outlines as viewed from above are generally either quadrangular or racquet shaped, with comparatively slender tails, in the sting rays and others reduced to mere whiplike appendages. The weapon which figures in the story of Capt. Smith, is a long serrated spine, occasionally two or three, on the basal half of the tail, and while there is no poison gland connected with it, it makes a very painful wound almost certain to be infected, and the fish capable of inflicting it are treated by the fishermen with great respect.

The sting rays, of which there are a number of species on the coasts of the United States, reach a large size, being sometimes 6 or 7 feet in breadth, with a total length of 10 or 12 feet, but the giant of its kind is the so-called devilfish, which reaches, and by some authorities is said to considerably exceed, 20 feet in breadth. The great size and enormous strength of this fish have given rise to extraordinary myths concerning it, but the facts are sufficiently impressive without exaggeration. It is sometimes taken for sport with the harpoon, and when securely struck a large specimen will tow a heavy launch for miles before becoming exhausted.

Another interesting group of rays comprises the torpedoes or "cramp fishes," which are provided with electric organs capable of administering a shock strong enough to knock a man down, a fact well known to the fishermen, who deal with living specimens with due caution.

A large number of the skates and rays, however, are more ordinary in character, possessing neither enormous size and strength nor offensive weapons. They all have the same general habits, living on the bottom, though often appearing at the surface, and sometimes hurling themselves into the air to fall back with a resounding noise. They feed on crabs, mollusca, and other bottom-dwelling organisms, and some species, particularly the sting rays, are so destructive to oysters that in certain localities it is necessary to protect the planted beds with stockades of closely set piling or wire netting.

Russell J. Coles, whose exploits in catching sharks and devilfish are well known, particularly through a recent interesting magazine article by Col. Roosevelt, and who has probably tested the edible

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qualities of more of these fishes than any other American, has furnished most of the following notes regarding the characteristics of the different species.

The spotted sting ray freshly caught and cooked as any other fish is most delicious, reminding one somewhat of very fine, fat bluefish. It may be preserved for months in excellent condition if packed in dry salt. After one week remove it from the brine which forms, stack it so as to drain thoroughly, and repack in dry salt as before. To prepare the salt fish for cooking, soak it for 36 hours in at least three changes of water, when it is nearly restored to its original fresh flavor. Before salting or using this fish fresh, an incision should be made around the margin of the fish and the skin stripped off in two pieces, back and belly, which have a value for tanning. The cow-nose and eagle rays have similar qualities and may be treated in the same way.

The common sting rays, of moderate size, are good fresh, but the larger ones are improved by salting. The barn-door skate furnishes a large amount of good, wholesome, and palatable flesh. It may be eaten either fresh or salted, although in the first state it is not quite as good as the species previously described. The summer skate is similar.

The briar ray or little skate, is excellent fresh, when it has somewhat the flavor of shrimp, but it is small and furnishes much less meat than the other species. It is readily taken in large numbers, however, particularly at a season when other fish are scarce, and should make an important addition to the food supply.

RECIPES.

Skates should be skinned or thoroughly scraped, according to the character of the skin, before being cooked. Some of the following recipes call for considerable quantities of butter and other fats. Use butter substitutes and vegetable fats whenever possible, and during the period of food scarcity, give preference to the simpler recipes.

1. *Fried skate.*—Cut the skate into square pieces; let them lie for an hour in cold water to which have been added a little vinegar, a sprig of parsley, and a few peppercorns. Drain, wipe dry, and dredge with flour. Dip in egg and bread crumbs, and fry in hot fat until brown.

2. *Boiled skate with caper sauce.*—Cook the fish in sufficient salted and acidulated water to cover, adding sliced onion, 2 bay leaves, and a bunch of parsley to the water, with salt and pepper to season. Drain, place on a hot dish, serve with caper sauce, and garnish with parsley and sliced tomato.

3. *Boiled skate with black butter.*—Boil 2 pounds of skate until tender in salted water with onion, thyme, parsley, bay leaves, and pepper to season. Drain the fish and pour over one-half cupful of melted butter browned to hazelnut color, to which 1 teaspoonful of vinegar has been added.

4. *Boiled skate with white sauce.*—Boil 2 pounds of skate in salted water with a little lemon juice and a bunch of parsley. In a double boiler cook together 2 tablespoonfuls of butter and 2 of flour, and add salt, pepper, and grated nutmeg to season. Add 2 cupfuls of boiling water; bring to a boil, strain, add 2 tablespoonfuls of butter and the juice of a lemon. Pour over the fish and serve.

5. *Broiled skate a la Boston.*—Broil one side of the skate steaks until heated through, then turn, and spread the other side with a paste of butter, flour, chopped onion, and tomato pulp. Cook until brown and serve with the crust side up.

6. *Boiled skate.*—Cut 4 pounds of skate into convenient pieces for serving. Put into a kettle an onion and a carrot sliced, a bunch of parsley, a sprig of thyme, 2 bay leaves, a teaspoonful of salt, peppercorns, and one-third cupful of vinegar. Put the fish on this, add cold water to cover, and boil slowly for 45 minutes. Drain and serve with any preferred sauce.

7. *Skate a la Beaufort.*—Put 2 pounds of prepared and cleaned skate into a fish kettle with 1½ pints of white stock and 1 pint of water, adding salt, pepper, and sweet herbs to season, and one-half cupful of finely cut celery, onions, and parsley. Simmer for an hour, drain, remove skin, and put on a serving dish. Strain the liquid, thicken with 2 tablespoonfuls each of butter and flour cooked together, add 1 teaspoonful of beef extract, salt and cayenne pepper to season; take from fire, add the yolks of 3 eggs, beaten with the juice of a lemon and 2 tablespoonfuls of butter, pour over fish and serve.

8. *Stewed skate.*—Put in a fish kettle on the stove 1 tablespoonful of fresh butter. When melted, add one-half an onion, cut fine; let brown, then add 1 tablespoonful of flour, lightly browned, and enough hot water to cook the fish. To this liquor add some cut-up celery, some finely chopped parsley, 2 cloves, 1 bay leaf, a pinch each of mace, cayenne pepper, black pepper, and ginger, and 1 tablespoonful of fresh butter. When this mixture begins to boil, add about 1½ pounds of skate which has been cut into cubes and rubbed with salt. Cook until the fish is well done. Remove the cubes of fish to a platter, and add to the liquor 1 cup of sweet milk, stirring constantly; boil for 1 minute, then pour in the beaten yolks of 2 eggs, stirring all the time. Arrange the cubes of skate on the platter with small slices of lemon, and pour the liquor over.

9. *Steamed skate.*—Clean and wash thoroughly 3 or 4 pounds of skate, put on a plate, cover with a cloth, put in a steamer, and steam for two hours. Place on serving dish, sprinkle bits of butter on the top, salt and pepper, and place in oven for 2 or 3 minutes. Pour over an egg sauce and serve.

10. *Baked skate.*—Skin the fish and cut into suitable pieces for serving. Put into a buttered saucepan with the juice of half a lemon and a bunch of sweet herbs. Sprinkle with salt and pepper, dredge with flour and pour into it 2 cupfuls of milk. When nearly tender, drain, brown in oven, thicken the sauce with butter and flour cooked together, pour around the fish and serve.

11. *Baked skate.*—Soak 6 pounds of skate in salt water for 1 hour. Wipe dry and bake for an hour in a moderately hot oven, basting with melted butter and hot water. Add a little boiling water to the gravy, a tablespoonful of walnut catsup, a teaspoonful of Worcestershire sauce, salt and pepper to season, and the juice of 1 lemon. Thicken with browned flour rubbed smooth with a little cold water.

12. *Baked skate with tomato sauce.*—Cook together for 20 minutes 2 cupfuls of tomatoes, 1 cupful of water, a slice of onion, 3 cloves, and 1 teaspoonful of sugar. Blend together 3 tablespoonfuls each of melted butter and flour, stir into the tomato sauce, and cook until thick. Strain and pour half of the sauce

around 2 pounds of skate placed in a buttered tin. Bake for 35 minutes, basting often with the sauce. Transfer to a hot platter and pour the remaining sauce around it.

13. *Baked skate with egg sauce.*—Take 3 or 4 pounds of skate, lay it in a dish and pour over it 1 cup of fish broth to which is added 1 tablespoonful of vinegar. In half an hour drain, rub with salt and pepper, and put into a baking pan. Add enough milk to cover the bottom of the pan one-half inch deep. Bake for an hour, basting frequently with the milk.

For the sauce, melt 1 tablespoonful of butter, add 2 of flour, and cook thoroughly. Add 2 cupfuls of boiling water and cook until thick, stirring constantly. Add 2 chopped hard-boiled eggs, season to taste, pour over fish, and serve.

14. *Skate a la Creole.*—Lay 3 or 4 pounds of skate for an hour in oil and vinegar, adding finely chopped onion and minced parsley to the marinade. Drain and put the fish into a baking dish. Turn over it a sauce, made of 1 cupful of strained tomatoes, 1 tablespoonful of butter, 1 heaping teaspoonful of flour, and salt, paprika, and grated onion to season. Cover closely and bake until tender. Sprinkle with grated cheese and cook for 5 minutes longer. Transfer the fish carefully to a hot platter and pour the sauce over it.

15. *Skate a la Nantucket.*—Clean the skate and rub well with salt and pepper. Boil in salted water to which has been added a small bunch of parsley, a celery root, 2 sliced onions, a chopped carrot, and a little mace. When done, take up, sprinkle with cracker crumbs, dot with butter, and brown in the oven. Strain the liquid, thicken with butter and flour cooked together, pour around the fish and serve.

16. *Skate a la Majestic.*—Skin and bone skate steaks, and cut into fillets, cook in it 2 heaping tablespoonfuls of flour. Add 3 cups of milk and 1 cup of well seasoned. Cover with buttered paper, and set into a hot oven until cooked. Take the pan out, cover the fish with a layer of sweet Spanish peppers, spread with cream sauce, sprinkle with crumbs and grated cheese, dot with butter, and brown in a hot oven. Serve in the same dish.

17. *Skate chowder.*—Wash and skin 2 to 3 pounds of skate and cut into small cubes. Cut a quarter of a pound of fat salt pork into dice and fry crisp. Skim out the dice and fry two sliced onions brown in the fat. Strain the fat into a deep kettle, cover with sliced raw potatoes, add the skate, salt and pepper to season, and enough boiling water or fish stock to cover. Simmer slowly until the fish is almost done, add 2 tablespoonfuls of butter, a dozen split Boston crackers, 4 cupfuls of boiling milk, and the onion and pork dice. Reheat and serve.

18. *Skate a la crème.*—Boil 3 pounds of skate slowly in salted and acidulated water for half an hour. In a double boiler melt 2 tablespoonfuls of butter and cook in it 2 heaping tablespoonfuls of flour. Add 3 cups of milk and 1 cup of fish broth; cook until thick, stirring constantly. Season with pepper and salt, grated onion, and minced parsley. Put the fish upon a serving dish and pour the sauce over it. Put a border of mashed potatoes around the fish, rub with melted butter, and put into the oven until the potato is brown.

19. *Fillets of skate a la poulette.*—Free the fish of bones and cut into fillets. Sprinkle with lemon juice, salt, and pepper. Cover with sliced onion and let stand for half an hour. Remove the onion, dip into melted butter, roll up each fillet, and fasten with a wooden toothpick. Dip once more into the butter, dredge thickly with flour, and bake for 20 minutes in a moderate oven. Cut [illegible] whites of 3 hard-boiled eggs into rings and arrange around the fillet after

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placing on the serving dish. Sprinkle the grated yolks over the fish and serve with cream sauce.

20. *Skate a la Normandy.*—Put 3 pounds of fillets of skate into a buttered saucepan with salt and pepper to season, 1 tablespoonful of butter, 1 chopped onion, and one-half cupful of fish stock. Cover and cook for 15 minutes, then take up the fish and drain carefully. Cook together without browning, 2 tablespoonfuls each of butter and flour, add the liquid drained from the pan and enough mussel or oyster liquor to make 3 cupfuls of sauce. Cook until thick, stirring constantly, skim, take from the fire, and add the yolks of 4 eggs well beaten, 2 tablespoonfuls of butter in small bits, the juice of half a lemon and a dozen mussels or oysters cut fine. Pour the sauce over the skate and serve.

21. *Skate with fine herbs.*—Butter a baking dish and put into it pieces of prepared skate. Sprinkle with chopped mushrooms, onions, and parsley, season with salt and pepper, add 1 wineglassful of sherry and half a cupful of stock. Sprinkle with crumbs and bake. Take up the fish carefully and add to the liquid enough brown stock to make the required quantity of sauce. Thicken with butter and flour cooked together, add 1 tablespoonful of butter, 1 teaspoonful of anchovy essence, and the juice of half a lemon. Pour around the fish and serve.

22. *Skate a la Italienne.*—Put 2 pounds of prepared fish into a buttered saucepan with a bean of garlic, 1 bay leaf, 2 sprigs of thyme, 1 tablespoonful of butter, 3 cloves, and salt and pepper to taste. Sprinkle with flour, cover the fish with milk and simmer gently until done; then drain. Put into a serving dish, sprinkle with grated cheese, and garnish with boiled button onions, and triangles of fried bread. Strain the sauce over it and serve.

23. *Timbale of skate.*—Chop one-half pound of raw skate and press it through a sieve. Mix 1 cupful of bread crumbs to a smooth paste with one-half cupful of milk, and cook until it thickens. Take from the fire, add the fish pulp and the stiffly beaten whites of 4 eggs. Fill buttered timbale molds with the mixture and cook in a pan of hot water in a moderate oven for 20 minutes. Serve with cream or tomato sauce.

24. *Skate a la Palm Beach.*—Butter a baking dish and lay upon it 4 or 5 pounds of skate. Open a can of sweet Spanish peppers, drain, and cover the skate with them. Sprinkle with chopped onion, minced parsley, chopped mushrooms, crumbs, and dots of butter. Add 1 cupful of stock and a wineglass full of white wine. Bake for 20 minutes, basting frequently, take up carefully, and serve with fried sweet potatoes.

25. *Skate salad.*—Put 1 pound of cold, boiled skate, which has been boned, skinned, and cut into fillets, into a basin with a marinade of oil and lemon juice, seasoned with pepper, salt, minced parsley, and bay leaves. Allow to stand an hour, drain thoroughly and chop. Boil 3 or 4 medium red beets for half an hour, then drain and bake an hour in a hot oven. Peel, slice thin, and cool thoroughly. Mix with the skate, add a small bunch of raddishes sliced very thin, and half a dozen sliced pickles. Surround with lettuce leaves and pour over a French dressing.

26. *Carbonade of skate.*—Cut 2 pounds of skate into large cubes. Dip into melted butter, seasoned with salt, pepper, and onion juice, then into beaten egg, then into bread crumbs. Put into a buttered baking dish, spread with egg and butter, and cook in a hot oven for 15 minutes. Serve with Hollandaise sauce.

27. *Molded skate with green peas.*—Chop 1 pound of raw skate very fine. Add to it the yolk of 1 egg well beaten, and salt, red and white pepper to season. Add 1 teaspoonful of cornstarch rubbed smooth with two-thirds of a cupful of

milk and one-third of a cupful of cream whipped solid. Fill buttered individual molds, put into a pan of hot water, and bake in a slow oven for 20 minutes. Turn out on a platter and surround with cooked peas, reheated in cream sauce.

28. *Skate fritters.*—Rub into one-half pound of flour 2 tablespoonfuls of butter, add a pinch of salt, the beaten yolk of 1 egg, and enough cold water to make a very stiff paste. Roll the paste very thin and cut into pieces large enough to wrap small fillets of skate, which have been seasoned with pepper and salt and lemon juice. Fry brown in deep fat and serve with tomato or tartar sauce.

29. *Skate pie.*—Chop fine 2 carrots and 2 onions, 2 sprigs of parsley, a stalk of celery, and a bit of bay leaf. Fry in butter, seasoning with salt and pepper and powdered mace. Add 2 cupfuls of boiled milk and cook slowly for 25 minutes. Press through a sieve, add 2 cupfuls of sweet milk, and reheat. Add the fillets of 2 pounds of skate, the mussels taken from 2 quarts of mussel-in-shell parboiled in their liquor and drained, and one-half pound of cleaned fresh mushrooms. Cook for 2 minutes. Thicken with the yolks of 2 eggs beaten with 1 tablespoonful of butter and 2 of cream. Fill a baking dish lined with pastry, cover with crust, and bake.

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